# **ATTACHMENT 1**

## REDACTED VERSION OF DOCUMENT SOUGHT TO BE SEALED

1 UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF CALIFORNIA 2 **SAN JOSE DIVISION** 3 SENTIUS INTERNATIONAL, LLC, Case No. C-13-0825-PSG 4 Plaintiff, **DECLARATION OF DR. VIJAY** 5 MADISETTI IN SUPPORT OF SENTIUS INTERNATIONAL, LLC'S OPPOSITION VS. 6 TO DEFENDANT'S MOTION FOR 7 MICROSOFT CORPORATION, SUMMARY JUDGMENT OF NO **INFRINGEMENT** 8 Defendant. Date: January 13, 2015 9 Time: 10:00 a.m. 10 Judge: Hon. Paul S. Grewal 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

DECLARATION OF DR. VIJAY MADISETTI IN SUPPORT OF SENTIUS INTERNATIONAL, LLC'S OPPOSITION TO DEFENDANT'S MOTION FOR SUMMARY JUDGMENT OF NO INFRINGEMENT CASE No. C-13-0825-PSG

### **DECLARATION OF DR. VIJAY MADISETTI**

- I, Vijay Madisetti, hereby declare:
- 1. I have been retained by Sentius in this case as a testifying technical expert. On September 8, 2014, I submitted an expert report regarding infringement in this case, a true and correct copy of which is attached hereto as Exhibit A and referred to herein as "my report."
- 2. I have been asked to provide this declaration concerning Defendant Microsoft Corporation's Motion for Summary Judgment of No Infringement (Direct, Indirect, or Willful) ("Microsoft's Motion") in the above-captioned case. I have personal knowledge of the facts stated herein.
- 3. In particular, I have been asked to review Microsoft's Motion and provide a declaration regarding Microsoft's arguments concerning non-infringement. I have also been asked to consider certain limitations of the asserted claims and the Court's claim construction in this case.
- 4. I have reviewed Microsoft's Motion and its accompanying documentation. In the motion Microsoft argues that it does not infringe because it does not record a link to external reference materials in a look-up table as claimed. In making this argument, Microsoft does not actually contest that the spell check table, grammar check table, or actions table in the accused products do not literally or equivalently act as look-up tables, or do not record the required starting and ending addresses of terms or phrases of interest. Rather, Microsoft argues that no linking information to external reference material for that word or phrase of interest is recorded in the look-up table because the recording of the fError flags in the spell check and grammar check look-up tables corresponding to words or phrases of interest does not act to link such words or phrases to anything. This is not correct.
- 5. As I explain herein, in the accused products, a link to external reference information is recorded in the look-up tables in *at least three ways*, all of which are consistent with the Court's construction of the claim term. First, the link points the system to the appropriate set of libraries (spell check or grammar dictionaries, for instance) containing external reference

material for display for the document containing the given word or phrase. Second, the link points to the specific language library (e.g., English spell check dictionary) containing the external reference material for display for the given word or phrase. Third and finally, the link points to the specific information to be displayed (e.g., the spelling correction) from the library.

#### The Use of Link Information Described for the Preferred Embodiment of the Α. **Asserted Patents**

- 6. The specification of the asserted '731 and '633 reissue patents in this litigation describes a process in which a document is loaded into memory and parsed to identify terms or phrases of interest. The relative locations of the identified terms or phrases of interest are recorded in a look-up table. Linking information is also recorded for each identified term or phrase of interest, whereby the linking information allows the system to retrieve external content corresponding to that term or phrase.
- 7. When a user indicates an interest in getting more information about a term or phrase of interest, such as by right clicking a term or phrase at a particular cursor point, the system selects the indicated portion, determines its address, converts the address to an offset value relative to the beginning position of the document, compares the offset value to the starting and ending addresses stored in the table to identify if it corresponds to a piece of the document for which a link has been recorded, and then uses the linking information to access and retrieve external reference information for display in a pop-up window.
- 8. In a preferred embodiment shown in the specification, the external reference information is shown (in part) as the text "Japanese economy" being displayed adjacent to a set of Kanji characters representing in Japanese the term "Japanese economy":

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Chapter 1-1≡
                                                               û
                 | 日本経済をとらえる
                 1. 経済と暴気をしっかりつかむ
                   (1)日本経済の歩み
                  わたしたち人類の祖先は過酷な自然と聞いながら、食料や資源を確保し、生きる勢力を
                 重ねてきました。粘り強いその営みはやがて食料生産革命、都市革命、産業革命として実
                 を結び、現代の華やかな物質文明へつながりました。それでも「文明の罐」以来、5,000
                 年間の世界の経済成長率は年平均にしてわずか!%にすぎないといわれています。人類の
                 歴史の短慢な進歩を考えると、 調査を置のここ | 世紀の成長ぶりはまさに鴬異的といえる
                                  にほんけいざい
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                 でしょう。
                  200年前、イギリスが産業革 退縮 Link 混動で prante X Japanese economy き、
                 日本はまだ江戸時代半ば、田沼 Additional Notes D 国家を治むるを経済といふ」
                  (太宰春台『経済録』) というように、当時は経済という言葉も統治や政治をさす用語に
                 すぎませんでした。
                  日本が近代的な経済成長を開始したのは、板垣退助らが議会設立の建自書を出した明治
                 7 (1874)年ごろからです。イギリスより100年も遅れて近代化に乗り出したことが、
                  「欧米に追いつき、追い越せ」という成長のエネルギーになりましたが、悩ましい問題も
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FIG. 3

9. As shown in Figures 3 and 4 of the '731 patent for an exemplary embodiment, the '731 provides a system that allows select terms in a document to be highlighted and additional information associated with that term readily retrieved from a database and displayed in a pop-up window near the term.

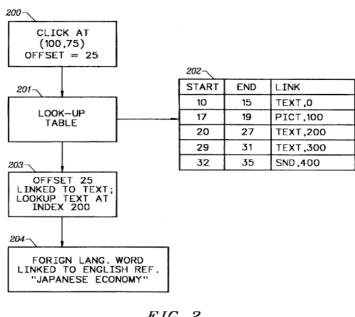


FIG. 2

- 10. As shown above in Figure 2 of the '731 patent for the exemplary embodiment, the external material for display for a given term is provided via recording in a look-up table the relative positions (offsets) of select terms or phrases within the parsed document that the system has determined to have associated information to retrieve and display (in response to a request from a user) along with a pointer that is used to retrieve the corresponding associated information from the database.
- 11. In Figure 2, the preferred embodiment records the link information in the form, e.g., of "text, 200" corresponding to the character position "25" which the user indicated (or right clicked on). This link information points the system to the "text" database and instructs the system to use the value "200" to retrieve from the text database the external reference information for the clicked on word, thereby linking the word to external reference information. *See also* sections III(A)(1) and III(B)(2) of my report.
- Likewise, in the accused products, link information is recorded in a look-up table that instructs the system how to retrieve external reference information such as suggested spelling or grammar corrections from spell check or grammar check libraries appropriate for the clicked on word or phrase, as will be further described herein. For example, the recording of an fError flag (i.e., setting the fError flag value to "1") in the SPLS structure (the PLC Tables containing the SPLS structures are the claimed "look-up table") corresponding to a particular entry in the spelling PLC table (a) points the system to the appropriate spelling library for the clicked on word and (b) instructs the system to use the character string of the clicked on word to (c) retrieve the spelling corrections from that library, thereby linking the word to external reference information.

#### **B.** The Accused Products

13. The Accused Products for the '731 and '633 patents are the 2013, 2010, and 2007 versions of Microsoft Word, Outlook, PowerPoint, OneNote, and Publisher for Windows, and the 2011 versions of Microsoft Word, Outlook, and PowerPoint for Macintosh. For the '731 and '633 patents, the accused functionality is the spell check functionality of each of the accused products; the grammar check functionality of Word and Outlook in both Windows and Macintosh versions,

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- 14. The Accused Products include a background spell check feature, background grammar check feature, and/or an actions/factoids feature (also referred to as "Smart Tags") that for the purpose of opposing Microsoft's Motion all work substantially similarly. Generally, when a Microsoft Word document is opened into memory ("in-memory representation") it may be operated upon by the MS Word program, which knows where the "character stream" is stored inmemory as well as the "table stream." The document is parsed and the parsed terms or phrases are checked against spell check, grammar check, and Smart Tags libraries to identify words or phrases for which the program wants to link to additional information. In the case of the spell check, for example, the Microsoft Word spell checker would identify potentially misspelled words for which it would want to link to suggested spelling corrections. Likewise, for grammar check, the grammar checker would identify potentially grammatically incorrect phrases for which it would want to link to suggested grammatical corrections. For actions, the accused "Actions" functionality would identify terms for which it would want to link to additional information, such as stock performance information on Microsoft MoneyCentral.
- 15. For each such identified term or phrase, the respective functionality (spell check, grammar check, or "Actions") records in its own look-up table the character position (offset) for that term or phrase along with linking information that is used to retrieve the associated material. In the case of the spell checker and grammar checker, it will also highlight or underline such terms or phrases with red (misspellings) and green/blue squiggles (incorrect grammar). The accused "Actions" functionality (i.e., Office 2007 only) highlights actions terms with purple squiggles.
- 16. When a user, for example, right clicks on a misspelled word or a grammatically incorrect word or phrase, the system (a) selects the corresponding location for which it wishes to translate the screen position to a character position, (b) translates that screen position to a character position, (c) looks up that character position in the corresponding spell check or grammar check

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table and (d) if there is a link to external materials for that term or phrase, executes that link to retrieve its corresponding additional information from a respective spell check, grammar check or actions database (library).

- 17. Each of the accused functionalities records a link in a look-up table that is associated with a given word or phrase of interest that is used to retrieve corresponding information for display. For example, the recording of the fError flag in a spell check look-up table points the system to the spell check libraries for the document and links the misspelled word Moreover, the recording of the fError flag at a given index location in the spell check look-up table points the system to the information to be retrieved from the appropriate spell check library for display by pointing to the character string needed to be passed to the spell check library in order to retrieve the corresponding spelling corrections for display. There is no requirement in the claim that limits the link to only a direct link (i.e. that the pointer directly point to the information for display) and Microsoft has previously conceded that a link can be indirect or direct. Moreover, the Court's construction does not require that a pointer point to an address. Indeed, the dependent claims make clear that the link can be any information that is used to retrieve the corresponding external information for display for a given word or phrase of interest. Here, the recording link in the spell check table not only points to and links the misspelled word to at least one spell check library from which the spelling corrections will be retrieved, but also points to and links the misspelled word to its suggested spelling corrections.
- 18. Likewise, the recording of the fError flag in a grammar check look-up table points the system to the grammar check libraries for the document and links the grammatically incorrect word or phrase thereto. The recording of the fError flag at a given index location in the grammar check look-up table points the system to the information to be retrieved from the appropriate grammar check library for display by pointing to the character string needed to be passed into the grammar check library in order to retrieve the corresponding spelling corrections for display. Thus, the recorded link in the grammar check table not only points to and links the grammatically incorrect word or phrase to at least one grammar check library, but also points to and links the

l	grammatically incorrect word or phrase to its suggested grammatically corrections to be retrieved							
2	from the appropriate grammar check library for that word or phrase.							
3	С.	The "Link" Limitation						
1	19.	Claim 96 of the '731 patent recites:						
5	materi	A method for linking textual source material to external reference als for display, the method comprising the steps of:						
		determining a beginning position address of textual source material						
3	stored in an electronic database; cutting the textual source material into a plurality of discrete pieces; determining a starting point address and an ending point address of at least							
)		one of the plurality of discrete pieces based upon the beginning position address;						
0		recording in a look up table the starting and ending point addresses;						
1		linking at least one of the plurality of discrete pieces to at least one of a plurality of external reference materials by recording in the look-						
12		up table, along with the starting and ending point addresses of the						
13		at least one of the plurality of discrete pieces, a link to the at least one of the plurality of external reference materials, the plurality of						
14		external reference materials comprising any of textual, audio, video, and picture information;						
15		displaying an image of the textual source material;						
		selecting a discrete portion of the displayed textual source material image;						
16		determining a display address of the selected discrete portion; converting the display address of the selected discrete portion to an offset						
17		value from the beginning position address;						
18		comparing the offset value with the starting and ending point addresses recorded in the look-up table to identify one of the plurality of						
19		discrete pieces;						
20		selecting one of the plurality of external reference materials corresponding to the identified one of the plurality of discrete pieces;						
21		retrieving the selected one of the plurality of external reference materials using a recorded link to the selected one of the plurality of						
22		external reference materials; and						
23		displaying the retrieved external reference material.						
24	20.	Claim 146 of the '633 patent recites:						
25	to exte	A computer-implemented method for linking textual source material ernal reference materials for display, the method comprising the steps of:						
26 27		determining a beginning position address of textual source material stored in an electronic database;						
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cutting the textual source material into a plurality of discrete pieces; 1 determining a starting point address and an ending point address of at least 2 one of the plurality of discrete pieces based upon the beginning 3 position address; 4 recording in a look up table the starting and ending point addresses; 5 linking at least one of the plurality of discrete pieces to at least one of a plurality of external reference materials by recording in the look-6 up table, along with the starting and ending point addresses of the at least one of the plurality of discrete pieces, a link to the at least 7 one of the plurality of external reference materials, the plurality of 8 external reference materials comprising any of textual, audio, video, and picture information: 9 selecting a discrete portion of an image of the textual source material; determining a display address of the selected discrete portion; 10 converting the display address of the selected discrete portion to an offset 11 value from the beginning position address; comparing the offset value with the starting and ending point addresses 12 recorded in the look-up table to identify one of the plurality of discrete pieces; 13 selecting one of the at least one of the plurality of external reference 14 materials corresponding to the identified one of the plurality of discrete pieces; and 15 displaying on a computer the selected one of the plurality of external reference materials. 16 21. The Court has construed the italicized limitations in both claims above to mean "a 17 pointer/pointers to data or information or the location of data or information that is external to the source material." 19 22. I note for the purpose of this declaration that claim 96 of the '731 patent includes 20 a step of: "retrieving the selected one of the plurality of external reference materials using a 21 recorded link to the selected one of the plurality of external reference materials." I also note that 22 this step is not contained in claim 146 of the '633 patent. 23 23. Certain asserted dependent claims in both the '731 patent and the '633 patent 24 further specify that the link (i.e., pointer) may be any "reference information" that is used to 25 26 27 28 DECLARATION OF DR. VIJAY MADISETTI IN SUPPORT OF SENTIUS INTERNATIONAL, LLC'S

retrieve the external materials for display.1

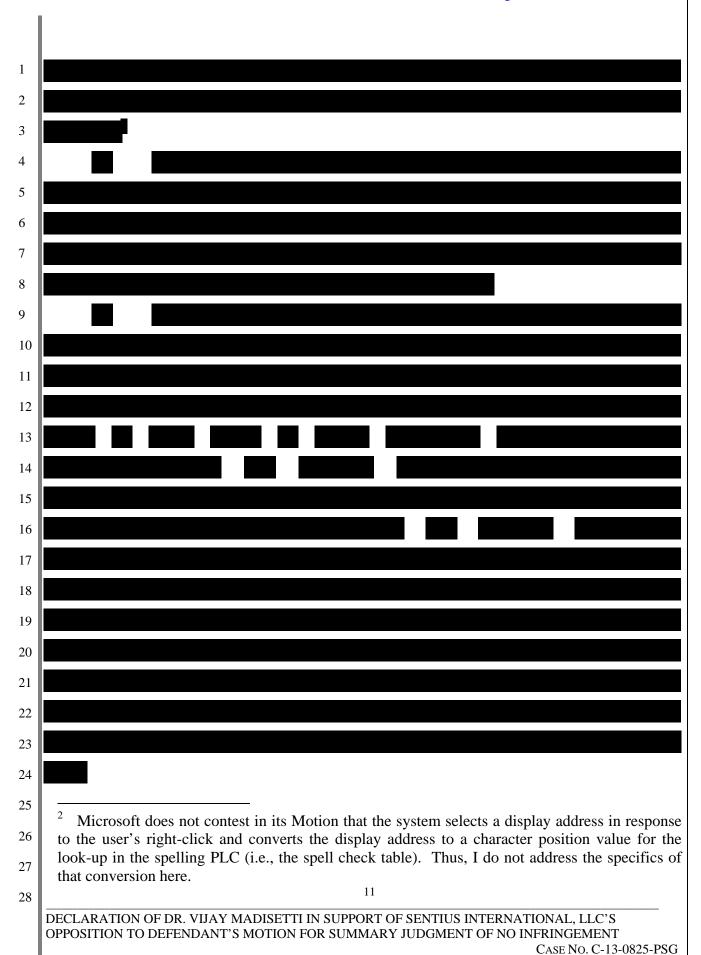
- A person of ordinary skill would understand that a link or pointer can be direct or indirect, and that a pointer to the query values or keywords needed to retrieve the corresponding information from a data set is a link to that corresponding information in a system in which a given query value input to the database produces the same output result. *See, e.g.*, section III(A)(2) of my report explaining how query values or keywords passed to a database link to the specific database results for that query value or keyword.
- 25. The claim language requires a link to the *at least one* of the plurality of external reference materials. For the accused spell check functionality of MS Word, for instance, the fError field recorded in the SPLS data structure in the spelling PLC is a pointer to data or information or the location of data or information that is external to the source material, because it points the system to at least one spell check library for that document. Moreover, the *at least one* spell check library or dictionary pointed to by the recording of the fError flag in the spell check look-up table is (1) external to the source material, and (2) contains at least the materials that will be retrieved for display.
- 26. The fError flag is also used in the retrieving step for retrieving the selected one of the plurality of external reference materials, because it uses the recorded link (i.e., the fError flag) to identify the misspelled word and its location and also creates and points to the arguments passed to the DLL used to retrieve the potential corrections.
- 27. For example, the Court's construction is met in the following three ways for the accused spell check functionality. *See also* my report at section IX(A)(6).
  - a. The fError flag being set to "1" in the SPLF structure in the spelling PLC table points the system to the appropriate set of spell check libraries which contain the (at least one or more) external reference materials;
    - b. The fError flag being set to "1" in a particular SPLF structure in the spelling

<sup>&</sup>lt;sup>1</sup> For example, claim 154 of the '633 patent states: "[t]he method of claim 146, wherein the link is reference information for retrieving the selected one of the plurality of reference materials."

PLC table corresponding to the starting and ending character position locations of a given misspelled word links the word to the specific language spell check library for that word from which the corresponding spelling corrections will be selected and retrieved;

- c. The fError flag being set to "1" in a particular SPLF structure in the spelling PLC table corresponding to the starting and ending character position locations of a given word points the system to the character string of the misspelled word that, in turn, links that character string to the corresponding spelling corrections from that specific spell check dictionary for that given character string.
- 28. Likewise, the Court's construction is met in at least the following three ways for the accused grammar check functionality. *See also* my report at section IX(A)(6).
  - a. The fError flag being set to "1" in the SPLF structure in the grammar PLC table points the system to the appropriate set of grammar check libraries which contain the (at least one or more) external reference materials;
  - b. The fError flag being set to "1" in a particular SPLF structure in the grammar PLC table corresponding to the starting and ending character position locations of a given grammatically incorrect word or phrase links the word or phrase to the specific language grammar check library for that word or phrase from which the corresponding grammar corrections will be selected and retrieved;
  - c. The fError flag being set to "1" in a particular SPLF structure in the grammar PLC table corresponding to the starting and ending character position locations of a given word or phrase points the system to the character string of the word or phrase that, in turn, links that character string to the corresponding corrections from that specific grammar dictionary for that given character string.
  - D. The Recording of the fError Flag in a Spell Check Table Links a Misspelled Word to the Spell Check Libraries for the Document.

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range.

The only issues before the Court in the Microsoft Motion with regard to the recorded fError flag in the spell check table for the misspelled word are (a) whether the recorded fError flag 8

links that word to a corresponding spell check library and (b) whether the link is used to retrieve

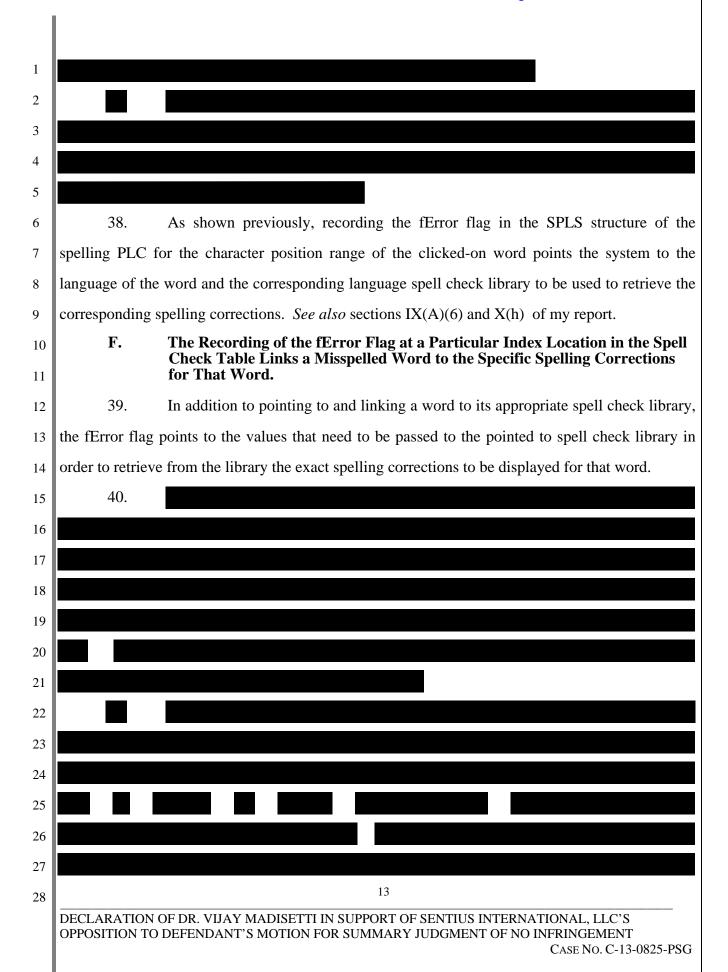
the exact spelling corrections for that word. The answer to both of these questions is "yes."

33. I will first walk through what happens when a user right clicks on a misspelled word and show how the misspelled word is linked to a corresponding spell check library through the recording of the fError flag in the spell check table in the SPLS structure corresponding to that word.

The fError flag being set to "1" in the SPLS data structure in the spelling PLC 34. informs the system that the user has right clicked on a misspelled word and points the system to the appropriate language spell check library for that word.

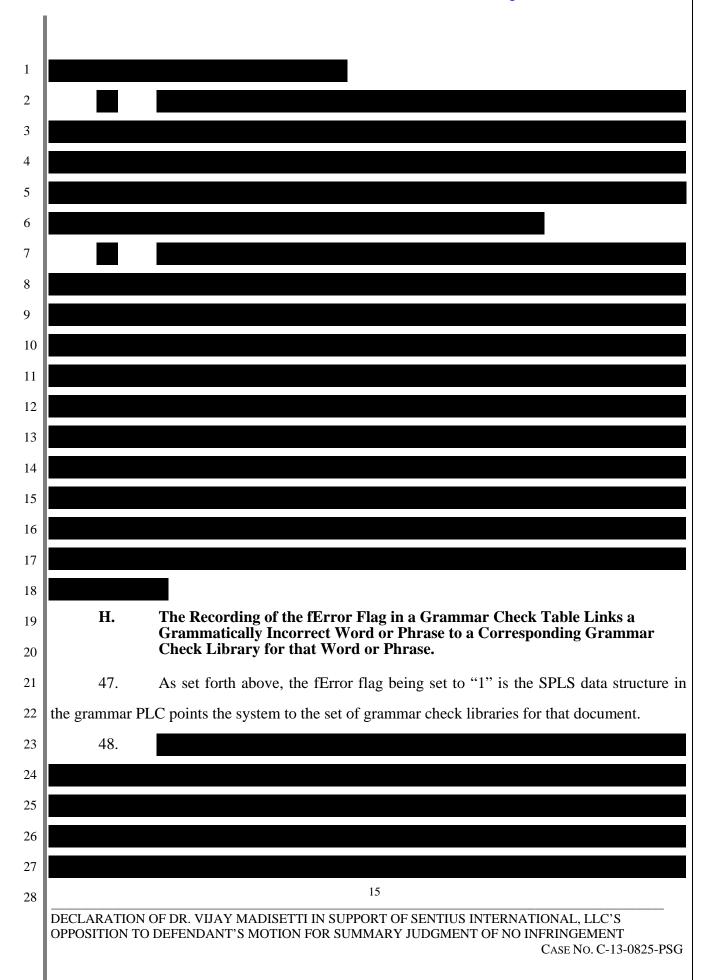
35.					
		12			

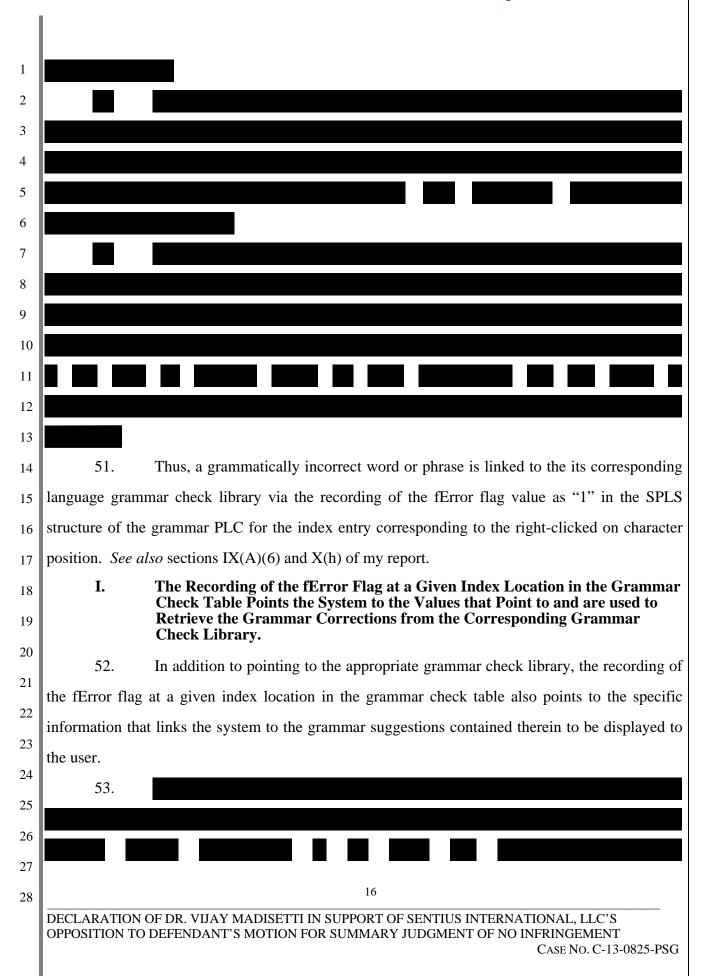
DECLARATION OF DR. VIJAY MADISETTI IN SUPPORT OF SENTIUS INTERNATIONAL, LLC'S OPPOSITION TO DEFENDANT'S MOTION FOR SUMMARY JUDGMENT OF NO INFRINGEMENT CASE No. C-13-0825-PSG

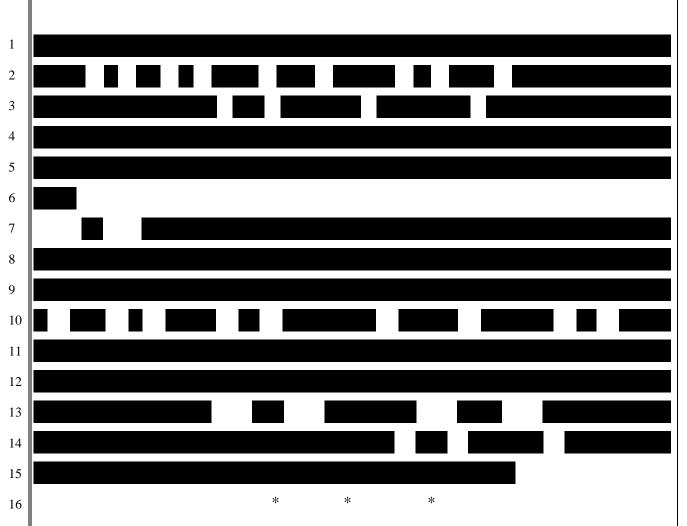


G. The Recording of the fError Flag in a Grammar Check Table Links a Grammatically Incorrect Word or Phrase to the Grammar Check Libraries for the Document.
42. Microsoft does not dispute in its Motion that the accused background gramma
check functionality identifies a grammatically incorrect word or phrase in an open Word document
and records its starting and ending character position locations in the grammar PLC. There is als
no dispute that the accused table sets the fError flag to "1" in an SPLS structure corresponding t
that word or phrase's character position range. The only issues before the Court in the Microso
Motion with regard to the fError flag in the grammar check table for the character position range of
the grammatically incorrect word or phrase are (a) whether the recorded fError flag links that wor
or phrase to a corresponding grammar check library and (b) whether the link is used to retrieve the
exact grammar corrections for that word or phrase. The answer to both of these questions is "yes."
43. I will first walk through what happens when a user right clicks on a grammaticall
incorrect word or phrase and show how the grammatically incorrect word or phrase is linked to
corresponding grammar check library via the recording of the fError flag in the SPLS structure
corresponding in the grammar check table corresponding to the character position range for the
word or phrase.
44.
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DECLARATION OF DR. VIJAY MADISETTI IN SUPPORT OF SENTIUS INTERNATIONAL, LLC'S OPPOSITION TO DEFENDANT'S MOTION FOR SUMMARY JUDGMENT OF NO INFRINGEMENT

CASE No. C-13-0825-PSG







55. Microsoft asserts: "There is no dispute that the accused 'look-up table' for these two features (referred to internally by Microsoft as a 'PLC' data structure) instead stores an 'error flag' – a binary value (a zero (0) or a one (1)) that indicates whether a particular location in the document is marked as potentially misspelled or potentially grammatically incorrect. In the code, this is referred to as an 'fError' flag."

- 56. I agree that there is an accused look-up table (the spelling PLC and grammar PLC) in each of the accused background spell check and background grammar check features, and that there is an fError flag used in the SPLS data structures of those tables that indicates whether a particular piece of the document is potentially misspelled or grammatically incorrect. What is missing in Microsoft's description, however, is how that fError flag acts as a pointer.
  - 57. While it is true that a flag can be used simply to identify whether something is

- 58. The fError flag is literally a pointer (it is) and the equivalent of a pointer (it is) because it points the system to (a) the appropriate set of libraries; (b) to the actual library from the appropriate set of libraries that will be used to retrieve the external content specific to a given word (or phrase); and (c) to the specific content from that specific library by pointing to the specific query values needed to be fed to the library to select, retrieve, and display the specific content. The fError flag performs the same function as a pointer and for exactly the same purpose and exactly in the same way as an indirect pointer for all the reasons set forth herein.
- 59. The recording of the fError flag in a given look-up table (e.g., the spelling PLC or the grammar PLC) points the system to the appropriate set of libraries (e.g. spelling or grammar). The recording of the fError flag *at a given index location* in the given table points the system the specific language library (e.g. English spelling library or French grammar library) for the corresponding word or phrase via the language identifier for that word or phrase. The recording of the fError flag at a given index location in a given table also points the system to the actual character string of the corresponding word or phrase which links to and is used to retrieve the specific information for display from that specific language library (e.g. the specific spelling corrections for that English word from the English spelling library or the specific grammar corrections for that French phrase).
- 60. Microsoft asserts: "Sentius' expert acknowledges that the accused products call the spelling and grammar engine before the error flag value is even set in order to determine what value to give that error flag. [Ex. I at 85:23-86:12.] In other words, the accused products are able to

locate the dictionaries irrespective of any flag value. Indeed, Sentius' expert admitted in his deposition that multiple dictionaries may be called for a given word depending on the language specified for that particular word. [Id. at 112:18-115:10.]"

- 61. As an initial matter, I did not testify that multiple dictionaries may be called for a given word depending on the language specified for that particular word. In general, that is not the case; however, I would not exclude the possibility of a fringe case where that could be true if somehow the language of one character in the character string was different from the language of another character in the string. To clarify, what I had testified at deposition was that the fError flag with its context initially points the system to the appropriate set of dictionaries.
- 62. As set forth above, a given input (e.g. character string) passed to a given spell check or grammar check library will repeatedly produce a given set of results from that library, as I have observed. This direct correspondence is what completes the link between, for example, the character string and the information for display from the library for that character string.
- 63. The accused background spell check functionality meets the link limitations by recording in the spell check table information that links a misspelled word to its corresponding spelling corrections by pointing the system to (a) the set of spell check libraries for the document containing the misspelled word, (b) the particular spell check library for the given misspelled word, and (c) the information needed by the system to retrieve the exact spelling corrections for display for that particular misspelled word. Likewise, the accused background grammar check functionality meets the link limitations by recording in the grammar check table information that links a grammatically incorrect phrase to its corresponding grammar corrections by pointing the system to (a) the set of grammar check dictionaries for the document containing the grammatically incorrect phrase, (b) the particular grammar check library for the given grammatically incorrect phrase, and (c) the information needed to retrieve the exact grammatical corrections for display for that particular phrase.
- 64. The asserted claims specifically contemplate that the "linking" is executed after a user selects a word or phrase for which the additional information from an external source is

1	desired. Indeed, the selecting, retrieving (where ap	oplicable) and displaying steps are all after the
2	recording step in each of the asserted claims. In the	accused systems, the link is executed upon the
3	user right-clicking on a misspelled word or gramma	tically incorrect phrase (or word) in the manne
4	set forth above in which first the appropriate librar	ry is loaded, the character string and language
5	arguments passed therein, and the corresponding	corrections for that character string selected
6	retrieved, and displayed.	
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11		Atlanta, GA
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